

AN INSTANCE OF MULTIPLE MATING IN
ASILUS GILVIPES (DIPTERA: ASILIDAE)¹

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Multiple matings of individual asilids have only occasionally been recorded in the literature. Scarbrough (1978) observed multiple mating by females of *Cerotainia albipilosa* Curran; Lehr (1958), of *Promachus leontochlaenus* Loew; and Scarbrough and Sipes (1973), of *Leptogaster flavipes* Loew. Additionally, Adamovic (1973) observed females of *Dysmachus stylifer* Loew and *Echthistus rufinervis* Meigen copulating following oviposition, which, if one assumes oviposition was not forced by egg pressure, implies multiple mating.

Lehr (1958) observed multiple mating by males of *Promachus leontochlaenus* Loew; Lavigne and Holland (1969), of *Promachus dimidiatus* Curran; and Dennis and Lavigne (1976), of *Efferia varipes* Williston.

Lavigne (1972) observed recopulation by the same male and female of *Ablautus rufotibialis* Back; Scarbrough (1978), of *Cerotainia albipilosa* Curran; Lavigne and Holland (1969), of *Efferia pallidula* Hine; and Dennis and Lavigne (In Press), of *Machimus callidus* (Williston).

Asilus gilvipes Hine is a 14-17 mm long, golden-brown asilid associated with animal burrows in Wyoming (Lavigne, 1968). Two complete matings, involving the same female of *A. gilvipes*, were observed on July 14, 1978, at the entrance to a badger hole on shortgrass prairie, 10.4 miles west of Laramie, Wyoming, on the north side of Wyoming 130. The female was first observed sitting in the shade on the upper wall of the burrow. At 10:37 AM, a male *A. gilvipes* flew into the vicinity and, without landing, grabbed the female from behind. One and a half seconds later, when the male released his grip on the body of the female, he had joined his hypopygium to her ovipositor. The newly formed pair immediately assumed a "tail-to-tail" position, i.e., their heads pointed in opposite directions. At 10:45 AM, the male attempted to move in the opposite direction from the stationary female and, at 10:47 AM, buzzed his wings for a second or two, thus elevating himself above the substrate but remaining in place. At 11:03 AM, the pair fell to the floor of the burrow. They separated immediately. The male flew off; the female crawled about 15 cm down the wall of the burrow, where she remained in an upside-down position for an extended period of time. She was not visible from a horizontal plane. Consequently, it was necessary for a male to enter the burrow to see her.

At 11:11 AM, a male landed at the edge of the burrow. Between 11:11

AM and 11:33 AM, he engaged in a variety of activities unrelated to mating. At 11:33 AM, he suddenly hovered within the entrance to the burrow, flew directly into it, and grabbed the female. The grappling pair fell to the floor of the burrow, joined their genitalia together, and immediately assumed a tail-to-tail position. Two seconds later, the pair flew from the floor to the roof of the burrow near the entrance, both of which were in deep shade. At 11:54 AM, the male disengaged his hypopygium from the female's ovipositor, hovered in front of the female for about one-half second, and then landed an inch or two away from her on the wall of the burrow.

During both matings the surface temperature in the shade just inside the burrow was 10°C; in the sunlight just outside the entrance, 29°C.

Complete matings have not previously been recorded for *A. gilvipes*. Lavigne (1968) had speculated that copulation was initiated while both male and female were in flight. In both observed instances, however, the male initiated copulation while the female was on the soil surface. The first mating lasted 26 minutes; the second, 21 minutes. A 30 minute interval separated the two matings. The second male may or may not have been the same individual as the first.

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Footnote

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